Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 47. June, 1945. No. 558.

JUNCUS MERTENSIANUS AND ITS AUSTROLIMITAL SEGREGATE, J. DURANII

JOSEPH EWAN

(With one map)

FRANZ BUCHENAU wrote in 1906 that "*J*[*uncus*] *Mertensianus*, *nevadensis*, *Suksdorfii* et *columbianus* gregem polymorphum formant. Formae saepe difficillime distinguendae et in locis natalibus melius observandae." (Engler, Pflanzenreich **25:** 202.) Subsequent collections accumulating in our herbaria lend support to Buchenau's statement. But in plant species of wide distribution the geographically terminal populations may, under physiographic isolation, differentiate to a point where they can no longer, with morphologic consistency, be recognized as conspecific with the parent wide-ranging species. The degree of such departure from the characters of the species, along with the nature of the genus, determine whether the biologic unit shall be recognized as a species or subspecies. Juncus is generally admitted to be a natural genus; here the specific lines must be definitively and neatly drawn. Accordingly, I am distinguishing *Juncus Duranii* as the austrolimital Californian facies of the wide-ranging *J. Mertensianus*. The number of collections of *Juncus Duranii* available for study is unfortunately small. Moreover, the habitable areas where such a boreal Juncus might logically be expected in the San Gabriel Mts. are also limited. Dry seasons, particularly when repeated uninterruptedly for a span of years, force boreal plant species into dormancy. Close scrutiny of more cienegas along the highest coast-desert "divide" of the range may reveal additional colonies.

JUNCUS **Duranii,** n. sp. Slender perennial, rather densely tufted from a short usually matted vertical rootstock, glabrous throughout; stems erect, capillary, 10–20 cm. high, lightly compressed; leaves grass-like, all radical or nearly so, attenuate to a long tip, firm but not stiff, mostly shorter than the flowering stems, 7–15 cm. long, blades subterete, a little conduplicate below, the ligules prominent, rounded or cuspidate, straw-colored; bract of inflorescence subulate, usually 7–10 mm. long, early deciduous; heads solitary, 7–9 mm. across, rarely 2 in a short panicle, flattened-hemispherical; bractlets light-translucent, abruptly mucronate with a distinct awn; perianth-segments linear-lanceolate, 3 mm. long, pale chestnut-brown, the inner whitish on margins, the outer carinate; anthers equaling or a little longer than the filaments; capsule obtuse-obovoid (like *J. Mertensianus*), not stipitate at base; seeds narrowly lanceolate, 0.5 mm. long, honey-brown, obscurely longitudinally lineate.[1]

TYPE, *J. & N. Ewan 10060*, Lilly Spring, n. slope Mt. Hawkins, San Gabriel Mts., Calif., at COLO. *J. Mertensianus sensu* Parish, Muhlenbergia **6:** 123. 1910, as to so. Calif. colls. and sensu Johnston, Bull. S. Calif. Acad. Sci. **17:** 60. 1918, as to *Johnston 1502*, Kellys Cabin; cf. Johnston, Pl. World **22:** 83. 1919.

Known only from the San Gabriel, San Bernardino, and San Jacinto mountains of southern California where it is apparently localized about shaded mossy seeps in the White Fir-Lodgepole Pine association (*Abies concolor-Pinus contorta Murrayana*), often growing with *Mimulus moschatus* and other Canadian-Zone herbaceous species.

Colls. studied: San Gabriel Mts.: Mt. Islip, n. slope 7500 ft., *Fosberg & Ewan 4978* (LAM); Lilly Spr., Mt. Hawkins, TYPE; Kellys Cabin, 8350 ft., Ontario Peak, *Johnston 1502* (DS). Almost certainly *Johnston 1390*, Coldwater Fork Lytle Creek, in cienegas, 7000 ft., is this species but material not seen. San Bernardino Mts.: cienega in Mill Creek Canyon, ca. 6000 ft., *Parish 2522* (DS). San Jacinto Mts.: stream above Round Valley, *C. M. Wilder 924* (DS).

[1] JUNCUS **Duranii,** sp. nov. Herba perennis gracilis e rhizomate brevi verticali plerumque implexo subdense caespitosa omnino glabra; caulibus erectis capillaribus 10–20 cm. altis leviter compressis; foliis graminoideis omnibus basi vel basem versus gestis, in apicem longum angustatis, firmis plerumque quam caulibus floriferis brevioribus, 7–15 cm. longis, laminis subteretibus inferne leviter conduplicatis, ligulis prominentibus stramineis apice rotundatis vel cuspidatis; inflorescentiae bractea subulata plerumque 7–10 mm. longa mox decidua; capitulis solitariis 7–9 mm. diametro rarius 2 paniculam brevem formantibus depresso-hemisphaericis; bracteolis translucentibus abrupte mucronatis manifeste aristatis; tepalis lineari-lanceolatis 3 mm. longis pallide castaneis, interioribus margine albescentibus, exterioribus carinatis; antheris filamenta vel aequantibus vel paullum superantibus; capsulis obtuso-obovoideis basi estipitatis; seminibus anguste lanceolatis 0.5 mm. longis melleo-brunneis obscure longitudinaliter lineatis.

The *Juncus* here designated as *J. Duranii* was referred to *J. Mertensianus* by California authors, beginning with Samuel Bonsall Parish. However, it is almost as closely related to *J. nevadensis*. Table 1 brings out the morphological likenesses of

TABLE 1. COMPARISON OF THREE SPECIES OF JUNCUS

Juncus	*Mertensianus*	*Duranii*	*nevadensis*
Flowering stems	rather tufted from an almost single compact root-crown, not spreading-rhizomatous	tufted, from a single congested rootcrown, not spreading-rhizomatous	not tufted, several, from a spreading rhizome
Leaves	somewhat gladiate, distinctly compressed laterally, not at all capillary	not at all gladiate, narrowly lengthwise compressed, capillary	scarcely gladiate but variable, from capillary to linear.
Ligule	prominent, broadly rounded or barely acute at tip, opaque	prominent, rounded or cuspidate, translucent	prominent, long-acuminate to an acute tip, translucent
Bract of head	spathe-like or flaring, clasping at base, tapering to a long-filiform erect or ascending tip	only a little broader at base, almost uniformly subulate, erect or apparently early withering and deciduous beyond head	inconspicuous, short-subulate, equaling or a little exceeding lowest head
Heads	solitary or as if so by crowding of 2 or 3 short-stalked clusters (rarely 2 or more in interrupted succession), rounded-hemispherical or as broad as high	solitary or rarely 2 in interrupted succession, flattened-hemispherical in outline	often 3 or 4 (or to 10) in an interrupted narrow panicle, flattened-hemispherical to turbinate or campanulate
Bractlets subtending each flower	tapering to a short awn-tip, dark brown, opaque	abruptly mucronate with a distinct awn ⅓ as long as bractlet, flesh-colored, translucent	ovate, acuminate to an awn-tip, flesh-colored, translucent
Perianth segments	long-subulate, wholly rich shining chestnut brown	linear-lanceolate, pale or dilute brown, whitish-hyaline-margined	lanceolate, wholly light brown
Stigmas	included or scarcely exserted	long-exserted	long-exserted

Juncus Duranii with both cognate species. The seed characters are not definitive; both *J. Duranii* and *J. nevadensis* have minute seeds. The capsules of the three species are very similar and cannot be distinguished. In habit, leaf, bracts, heads, bractlets, and perianth *Juncus Duranii* combines the characters of *J. Mertensianus* and *J. nevadensis*.

Juncus Duranii bears the name of VICTOR DURAN, painstaking student of the flora of the White Mts. of the California-Nevada border (cf. Madrono **2:** 119), whose well prepared exsiccatae of the San Gabriel Mts., distributed by the University of California, have enriched our herbaria.

JUNCUS MERTENSIANUS

Juncus Mertensianus Bong., Mem. St. Petersb. Acad. Sci. ser. 6. **2:** 167. 1832, based on a Mertens collection from "l'Ile de Sitcha", Alaska. Type presumably at Leningrad. In Prager Herb. (CAS) there is a sheet (no. 106338) bearing the label "Sitcha, ex Museo Petropolitani 160"; this may be an authentic specimen. The many Alaskan collections examined are in agreement with this Sitka plant. Carl Heinrich Mertens accompanied Lütke on the corvette *Senjavin*, visiting Sitka from June 24th to July 31st, 1827, *fide* Hultén.

Since the publication containing the original description of *Juncus Mertensianus* is rare in libraries, the description is reproduced here:

> "162. *Juncus Mertensianus n. sp.* Culmo erecto basi vaginato, folio uno alterove plano lineari basi vaginante; floribus capitatis, triandris, perigonii exterioris partibus carinatis subulatis interioribus paulo longioribus; capsula.....
>
> Planta caepitosa [sic], spithamaea. *Culmi* basi vaginati, applanati, striati, glabri. Vaginae membranaceae basi laxae, aphyllae. *Folia* caulina 1–2, plana, linearia, acuta, glabra, striata, 1–2-pollicaria, basi vaginata; vaginis laxis, margine membranaceis, striatis. *Involucrum* foliis simile. *Flores* capitati, atro-purpurei. Capitula saepissime duo."

In the introduction to the florula of Sitka the statement is made that the enumeration is based on the collections of Mertens made on "l'Ile de Sitcha".

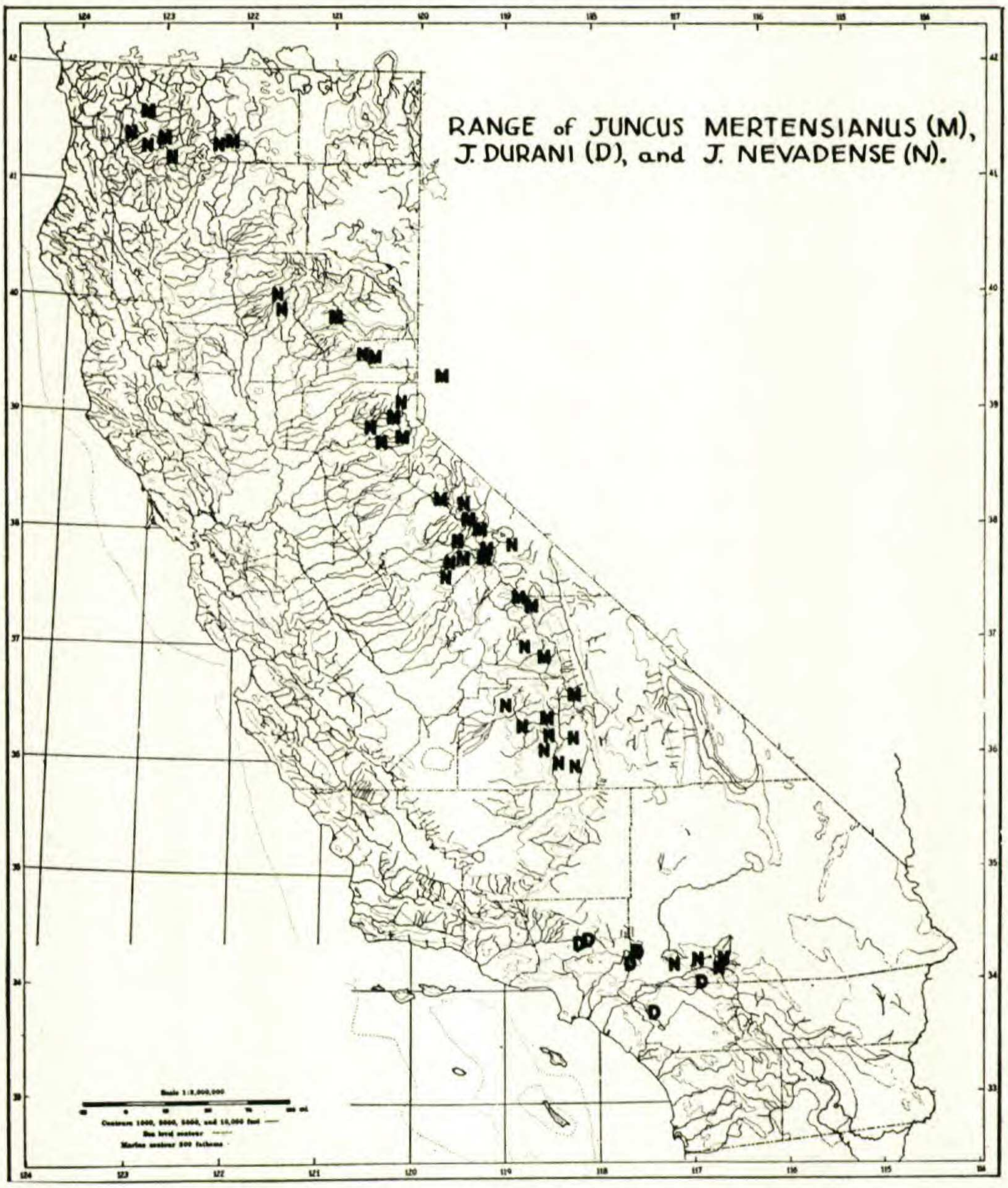
The published illustrations of *Juncus Mertensianus* are of varying usefulness and not all faithful to the habit of the plant. Both Buchenau (*op. cit.* fig. 96. 1906) and Jepson (Fl. Calif. fig. 42f and 42g. 1921) exaggerate the creeping rootstocks, as if the

material from which the figure was drawn had been abnormally flattened out in the press. However, Jepson does not describe the plant as strongly rhizomatous (*op. cit.* **1:** 254. 1921), as it is illustrated. The illustration offered by Abrams (Ill. Fl. Pac. States 363. fig. 888. 1923) better indicates the short *vertical* root-stock of *Juncus Mertensianus*.

Representative colls.: ALASKA: Old Harbour, Kodiak Isl., *Eyerdam 712* (DS); Yes Bay, 20 VIII 1895, *T. Howell* (DS); Unimak Isl., *Eyerdam 2021;* Atka, *Eyerdam 1174.* BRITISH COLUMBIA: Big Bend district, Selkirks, 6000 ft., *Shaw 1093* (COLO), *982* (COLO); Glacier VII 1896, *Dudley.* WASHINGTON: Olympic Mts., *Elmer 2735.* Whatcom Co.: Welcome Pass, 5000 ft., *Thompson 8068.* Pierce Co.: Paradise glacier, Mt. Rainier, 6000 ft., *Vincent Nelson 2912* (COLO). CALIFORNIA: Siskiyou Co.: Mt. Shasta summit trail, 8250 ft., *Cooke 16300* (COLO); Wagon Camp, Mt. Shasta, 5700 ft., *Cooke 13733* (DS); Rattlesnake Mdw., Preston Peak, 5500 ft., *Kildale 9035;* Medicine Lake, 7000 ft., *Heller 13715;* foot Mt. Eddy, 3700 ft., *Heller 12251.* Shasta Co.: Bumpas Hell trail, Mt. Lassen, 7000 ft., 7 IX 1931, *M. S. Jussel* (CAS). Butte Co.: Butte Creek House, *E. B. Copeland 348;* Butte Meadows, *Heller 14680.* Plumas Co.: Mud Lake, Mt. Elwell, 6800 ft., *Ewan 8274.* Sierra Co.: Lake of the Woods, vic. Webber Lake, 1 IX 1894, *Dudley.* Amador Co.: Emigrant trail summit, 8000 ft., Silver Lake, 24 VIII 1929, *Gwendolen Newell* (CAS). Eldorado Co.: Grass Lake, Lake Tahoe region, *Abrams 6793;* Glen Alpine, 1 VIII 1906, *Geo. B. Grant;* Desolation Valley, 8500 ft., *Abrams 12735.* Tuolumne Co.: summit Sonora Pass, 9000 ft., *Hutchinson 3777* (COLO). Mono Co.: Mill Creek, Lundy Canyon, 8200 ft., *Pierson 12200* (COLO); Mono Lake, *Abrams 13613;* Slate Creek Basin, *J. Clausen 967* (DS). Mariposa Co.: above Nevada Falls, Clouds Rest trail, 13 VI 1894, *Dudley;* Peregoy Mdws., 7200 ft., *Abrams 5457, 5462;* Yosemite Valley, *Abrams 4630.* Fresno Co.: upper Kings River, 23 VIII 1904, *Dudley.* Tulare Co.: Kaweah Peaks, 6000–8000 ft., *Dudley 2332;* above Bullion Flat, Mineral Gap, *Dudley 2582;* Hocket trail, *Dudley 1065;* upper Kern River, in 1875, *Rothrock 382* (DS). Inyo Co.: Rock Creek Lake Basin, 11,400 ft., *Peirson 9119* (COLO). UTAH: Iron Co.: betw. Navajo Lake and Cedar Breaks, *Eastwood & Howell 7250* (more rhizomatous than Pac. coast colls.!). COLORADO: Clear Creek Co.: meadow at upper Clear Cr. above Ski House, *Ewan 14646.*

EXCLUDED SPECIES

Juncus aseptus Engelm. ex Buch. = *J. nevadensis* Wats., Proc. Am. Acad. Arts and Sci. **14:** 303. 1879. *Juncus aseptus* Engelm.



ex Buch. in Engler, Pflzr. **25:** 202. 1906, *nomen subnudum*, based on *Parish 3788*, from Bear Valley, San Bernardino Mts., Calif. Isotype (UC) studied.

"Juncus aseptus", an herbarium name bestowed by Engelmann, was first published by Buchenau and must rest nomenclaturally on *Parish 3788*. Parish was correct in pointing out (Muhlenbergia **6:** 123. 1910) that the name was first given to an earlier collection, also from Bear Valley, his *1439*, nevertheless his *3788* must be considered the type collection, contrary to Parish's holographic note accompanying *1439* in the Parish

Photo. B. G. Schubert.

EUPATORIUM CORDIGERUM: FIG. 1, portion of TYPE, × 1; FIG. 2, venation of lower leaf-surface, 1½; FIG. 3, old involucre, × 10